Notebook, N-88-01-03.2

This notebook was probably begun by Edison on January 3, 1888. The first page contains the notation, "Idea Book." At the front of the book are a series of notes and drawings for a caveat covering phonographs, electric lighting, ore milling, and batteries (April 29, 1889); an electric brake caveat (June 15, 1889); and an electric railroad caveat (April 10, 1890). Near the end of the book is a 5-page list of proposed inventions, followed by notes on phonograph caveats (April 14, 1888; November 10, 1888) and electric lighting experiments (April 14, 1888). The back cover is marked "Edison Private." The spine is labeled "47." The pages are unnumbered, and the book has been used in both directions. Approximately 130 pages have been used.

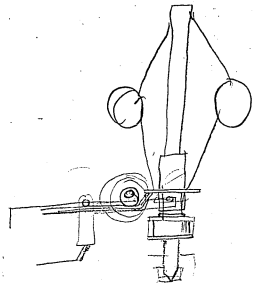
N-88-01-03.2

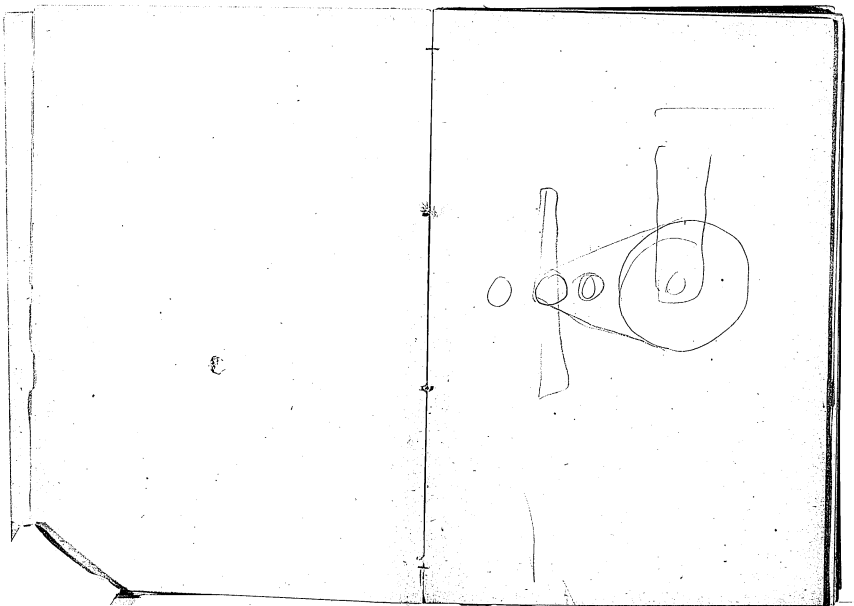
Idea Book

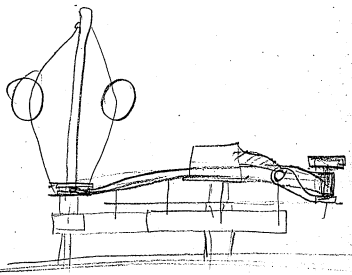
April 13, 1886

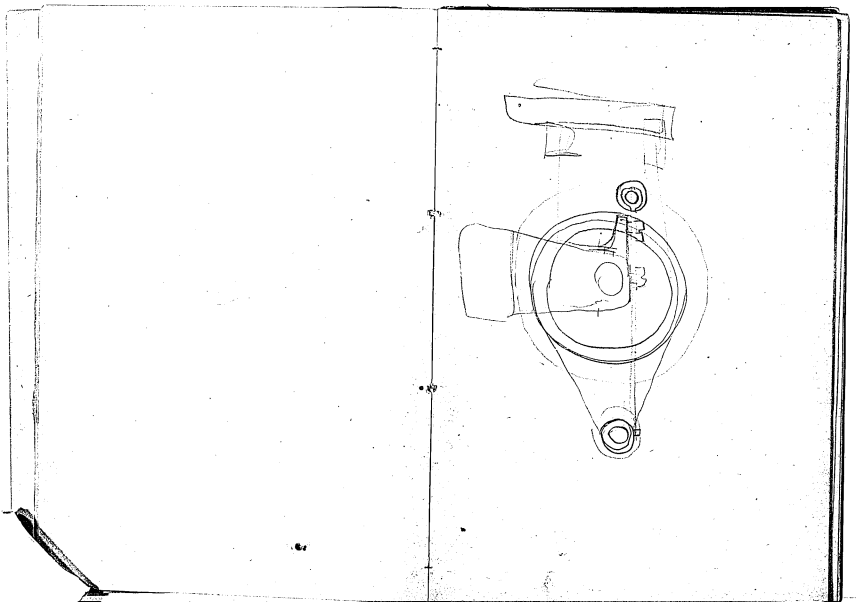
4

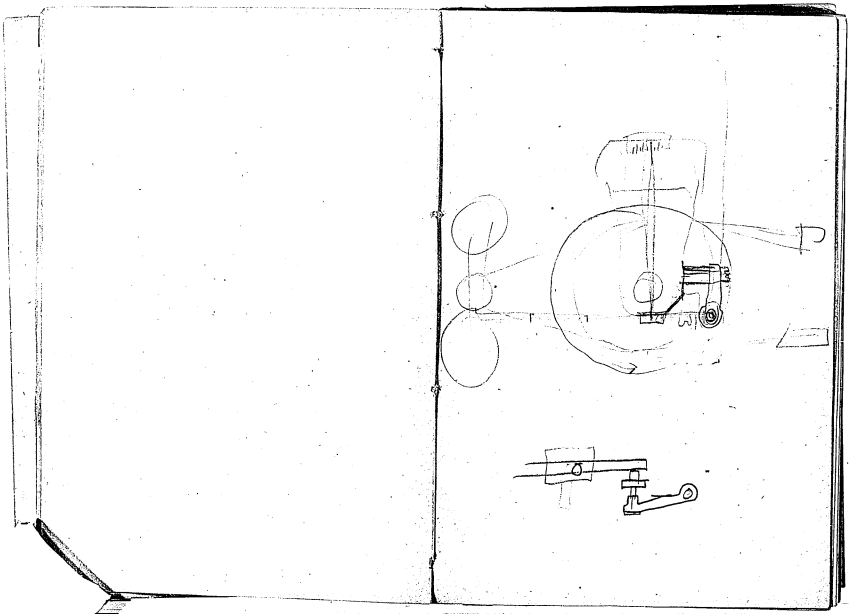
Time Work of Annette Hr. Lobeth Hyacinth Zane
Potter

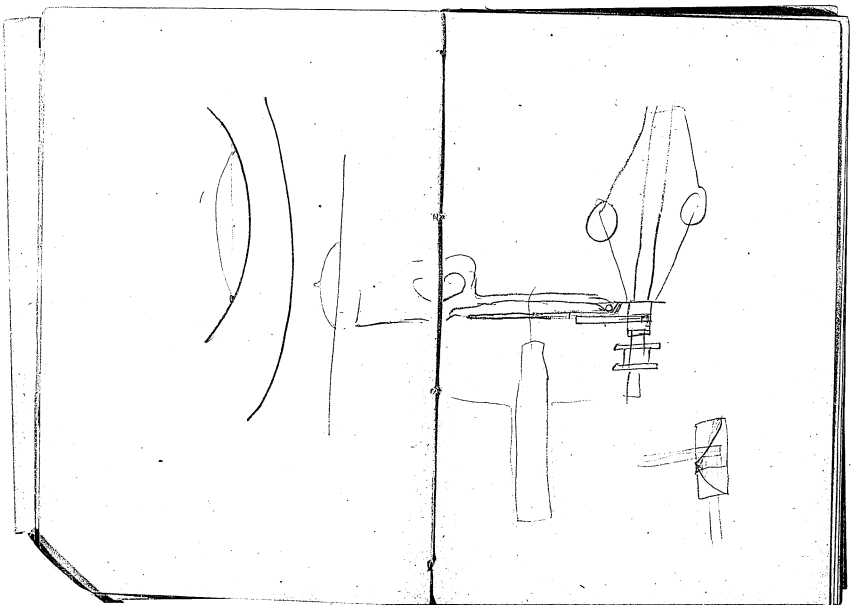


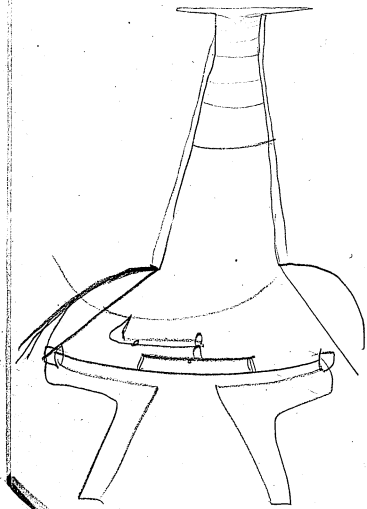


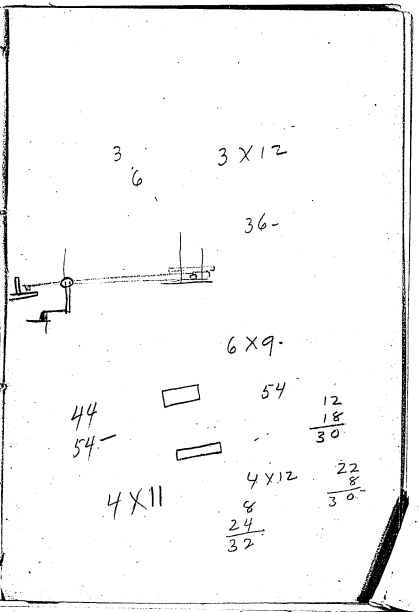











3
6
3 X 12
36-
6 X 9.
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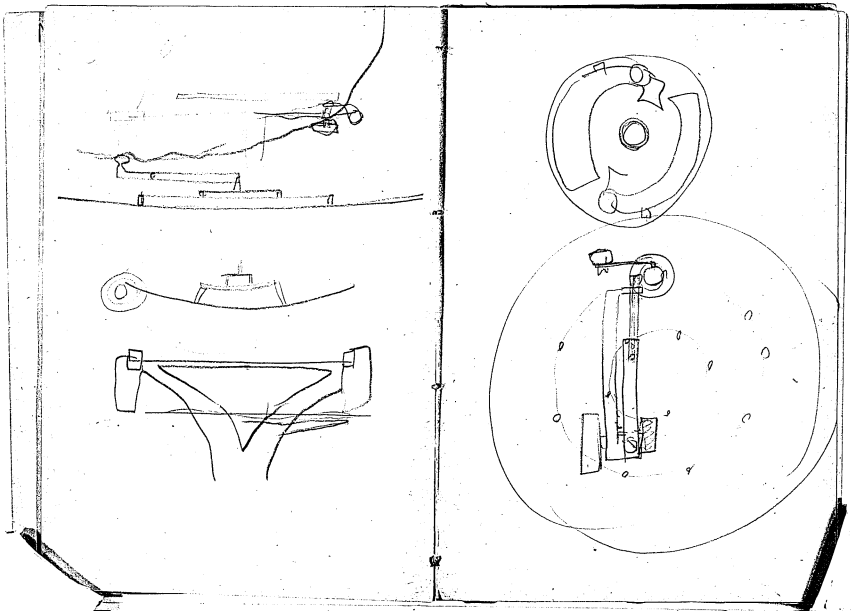
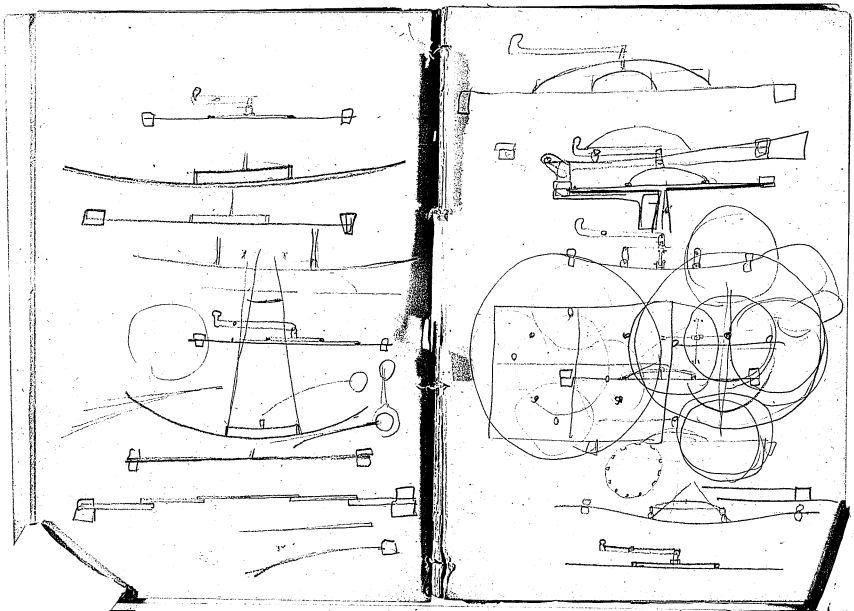
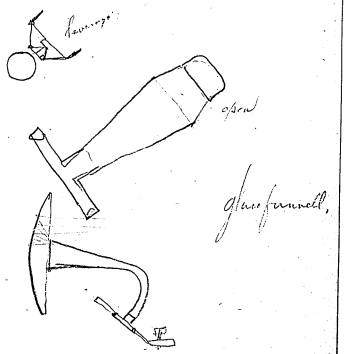
32



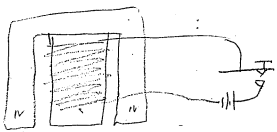


Phone Ed + Orville April 29. 89 -



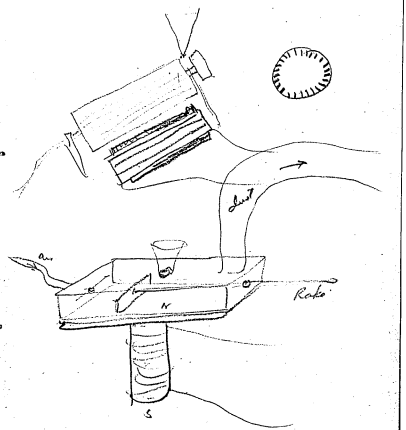
Caveat april 29. 89.

Inventing by sketch. Trace of ball cloth for inventing + reproducing

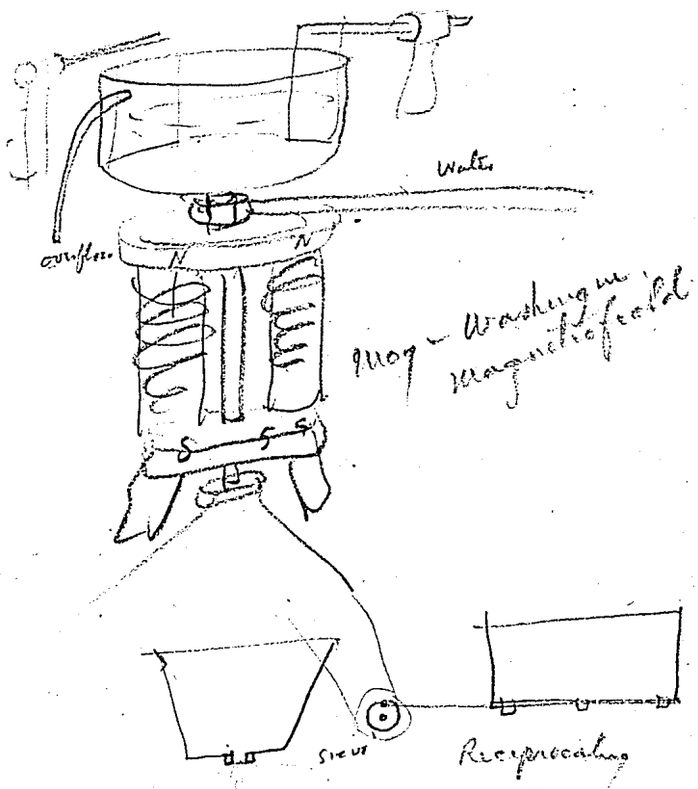


Left + drop =

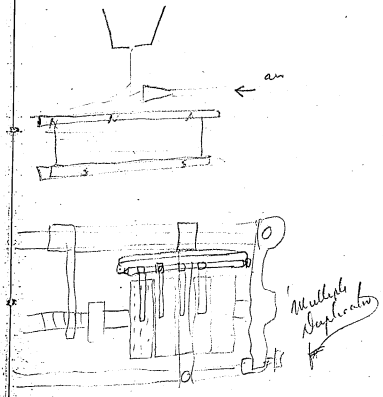
Caveat april 29, 89

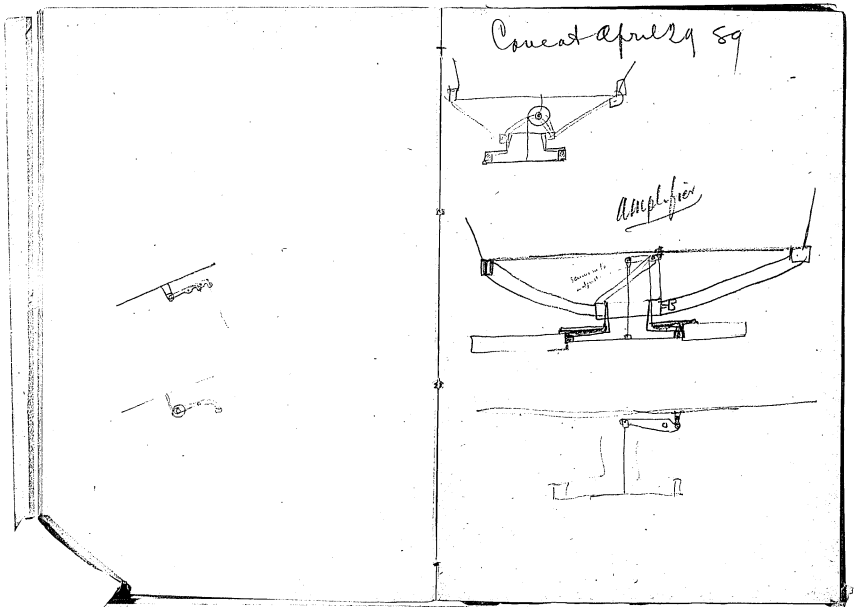


Caveat April 29 89

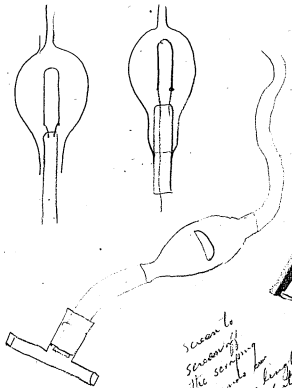


Caveat april 29 89




Concert April 89
Amplifier

Concert April 29. 89

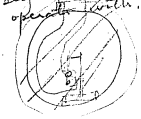


Screen to
screen off
the scraping
Sounds like
Longer evenings bring the
folks around for
plenty scraping
to sound like
Steadman's steps
Hmm

Concept April 29 89 -

Rotating Spectacle

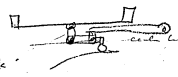
also put Recorder & Reproducer on same dia + by [illegible] slightly thinner [illegible] + but-splines to operate with.



Instead of spectacle we could have single arm & hole & case removable Combined Recorder & Reproducer also there could be 2 arms one with Recorder one with Reproducer & both move independently

Claim. Clamped diaphm preferably glass between clapped [illegible] discs without yielding material

Caveat April 29, 89



for plant
Brush whose hairs are stiff + run to a point, Deer hair,

Closed funnel filled with a heavy Vapor like Chloroform, with or without pressure,

a Turned surface on a phonogram.

a Turned surface on a phonogram in situ -

Covent. April 29-

a Cylinder of Halogenized Balata or similar gum Coated with photographic Recording medium for making Cylinder also a flexible -

Making a phonogram of a soft material adulterated with or composed wholly of a material which by a subsequent treatment Chemically etc will harden Stamp a way in which aniline oil will mix. Record on it & harden by Sulphuric Acid with formic acid Sulphanilic Compound

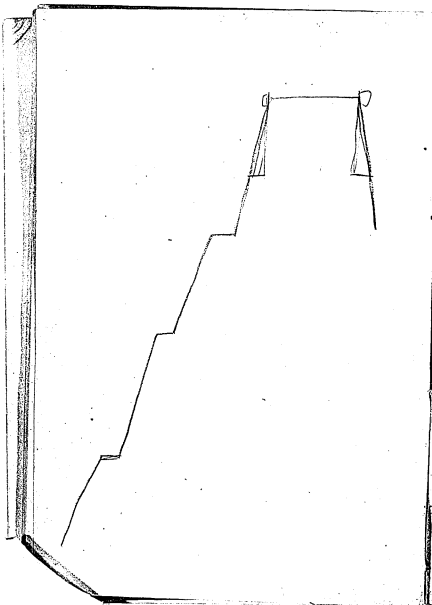
Concrete April 29 09

Mix paraffine with a Hydrocarbon or some hard wax or oleomargarine which will mix with the Hydrocarbon so that it can be worked in the plastic state then after record is made of how much the surface of the Cylinder to make the layer of Hydrocarbon a Solid derivative.

Asphalt mixed with such a Hydrocarbon like Bengal can be so proportioned as to be recorded upon wax thus. Chloronaled by Chlorine or by immersion in an electrolyte containing a Chlorinating Compound will become hardened

Caveat april 29. 89.

Chlorinated Balata when used for non inflammable insulating purposes is apt to become brittle, often the solvents have evaporated to prevent this - I propose to put Linseed oil with the balata + Chlorinate, also Linseed oil + Chlorinate with Chloride Sulphur - mix Camphor with it - free balata - Rubber - also gutta percha also Syrian asphalt ~~from~~ waxes also Chlorinated, filament carbon made from finely divided graphite mixed with a Carbonizable binding material like asphaltine or highly dehydrogenized asphalt like substance like that produced by oxidizing asphalt by nitric acid or by Chlorine which removes the Hydrogen - a part of by mixing Sulphur by a solvent with the asphalt or dehydrogenized Solvents ~~Naphtha~~ Benzine to ~~spin~~ thin as - filament + Carbonize

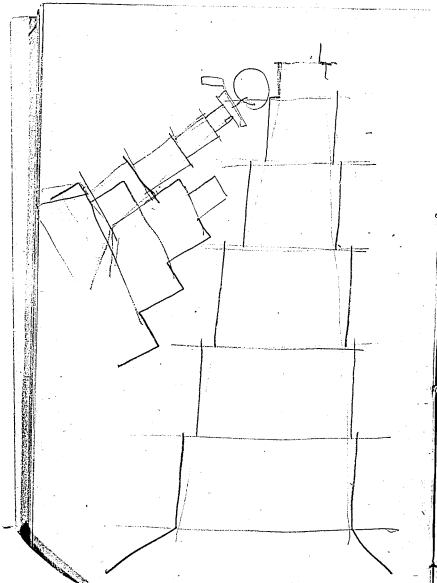


Concat april 29 –

I act on pulverized magnetic iron ore which have been calcinated as far as possible by an acid to remove the last traces of phosphorous which occurs in the form of phosphate of lime, I use warm sulphuric acid diluted – also nitric. get the acid boiled by a Centrifugal drier & then wash the ore with water to remove the products of the reaction –

For phonograph points I used Chemically pure iron reduced by Hydrogen form the same into shape & then form the other surface into steel by Cementation –

I propose to use Sapphire for the Shaving tool & Recording & Reproducing points, in Conducting Experiments to obtain proper Machining & make them accurately & economically

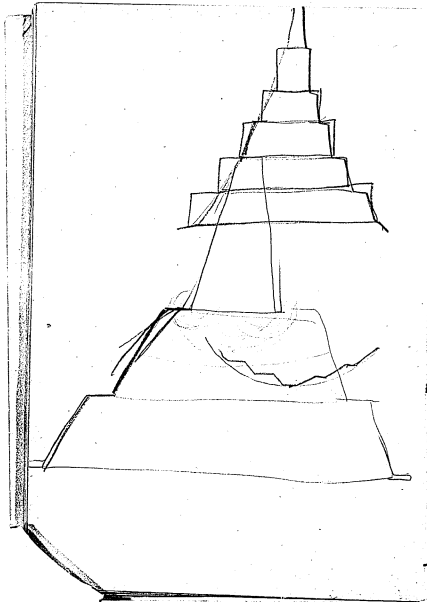


Concrete April 29, 89.

One process I am experimenting on is, moved through phonograph records; is to use a screw or hydraulic press and force the cylinders out like lead pipe cut them into proper lengths & then put them on a mandrel in a forming mould while plastic mould a proper mandrel made having a taper suspend set them to shape by a blow. withdraw from the mould & cool on the mandrel —

another method is making of forming the original stock in a proper mould withdrawing the mandrel & forcing the cylinder out as now. Force the material while in a plastic condition into the mould by a hydraulic press. the moulds being removeably connected to the press the press being hot so the material is plastic.

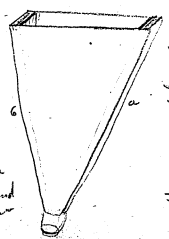
For rapid turning off the cylinders some may have a time [illegible]



Concert April 29. 89

I use several shaving Knifes following each other but all connected together regularly allowing each Knife to take such a depth of chip as not to chop the surface and for instance if I have 4 Knifes I am enabled to take off 6 times the depth of surface as one Knife. The first Knife takes a comparatively deep chip the 2nd one not too deep and the last Knife does the smoothing by this means the cylinder formed by the Knives is true to the surface as it comes to it and the surface is unnecessary.

Funnel made of Spruce wood. the sides equate their so that the sides form a domed portion some portion of the to be is away from a in mean in about of the Sound to produce



Here amplification of weight of the drum.

Concentapril 29 89

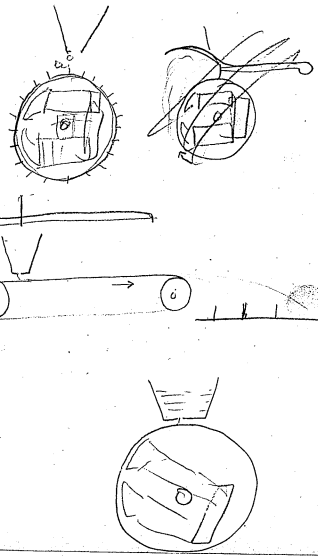
In this screw one side is square to the
screw below a certain pitch while
the other side is sloping at ½ all around
a certain pitch

Showing off clamp with
[illegible] bolt - so that it
takes right depth chip at
[illegible] which causes
[illegible] that chip not enough
to shave grooves taking off
a little time more than necessary
is taken off

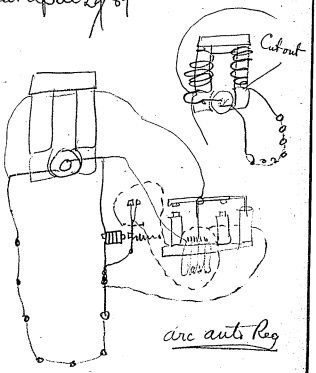
New clamp to clamp
driving arm

New double nut 100 thread
arm on sprocket to lift it
[illegible]

Camera april 29 89 -

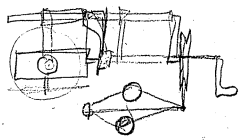


Concentapul 2/6/09



Concentrating April 29/89

To remove the non magnetic particles which cling to the magnetic by clevering planes & tumble the ore with large rocks after or before Concentration to remove the clinging particles of Concentrate & run through the Concentrator again.



Hand tumbling plans for toy furnace

Caveat April 29/89

The plastic material which I propose for the base of the veneered cylinder may be pressed into sheets while plastic rolled taper cut in strips & formed into a cylinder around a mandrel by bending or lapping or a round disk somewhat thicker may while plastic be forced over a mandrel to shape: or it may be spun over a mandrel. or the sheets may be forced out when in a plastic state by a press to under-wrapped around a mandrel & then turned or narrow strips can be forced from the press & be wound while plastic around a mandrel just as if it were paper & a cylinder formed & while still soft have the

Correct April 29 89

outer surface of the cylinder parallel to same diameter outside over whole of the cylinder by a hot iron or heat travelling along while material is ~~heated~~ If aqueous tube to and pipe. The thickness of the cylinder walls as well as diameter will be the same but as a taper mandrel is required to fit the taper of the phonogram holder of the phonograph a straight outside. The sections of pliable material as they come from the press must be checked when they are to be used when the phonogram is complete, hence by cutting the tube in sections shorter than the finished phonogram rolling on taper mandrel

April 29/84

Mr. Edison the Paper is made but the one under is now not same diameter. This is made right diameter of its whole length & the phonogram lengthened by ~~a~~ [illegible] spanning by a total column the undulations [illegible]

I make a battery by using say Zinc containing a small per cent of ~~them~~ Mercury. This I immerse in an Acid or Alkaline Solution such as Sulphuric Acid or Sodic Hydrate. The depolarizing Electrode I form of Red Oxide of Lead mixed with water or some Salvable Salt of Lead like the Acetate or Nitrate

April 29 89 — Concrete

just sufficient to moisten it then
mixed it by hydraulic pressure into
flat plates. These are sufficiently
Coherent to be handled. They
are then put into a peroxidizing
Solution say a suitable Hypochlorite
or Chlorate of Potash + Hydrochloric
acid - or dry hypochlorous gas is
passed over them + in fact many
methods of treating. The lower
oxide to a higher one can be
used - The Warm Hypochlorite
~~of Soda~~ is perhaps the
most convenient. The plate after
peroxidation is suspended in
the liquid in a lead frame
which makes contact with
the plate around all except
its top Edge - If the liquid
is say a 30 per cent Solution
of Sodic Hydrate, the results
are very good which the

Apl 29 89 Caveat

battery is at work but lead
gradually goes into Solution when
the circuit is open & is deposited
on the Zinc - My improvement consists
in immersing the plates before
use in water or an alkaline Solution
or even weak ~~acid~~ acetic
for several weeks so that
all of the unchanged red lead
is dissolved out and then when
the plates are put in the Regulating
battery by means of an External
conductor ~~short~~ keep the
battery always working (1e)
doing just enough work
internally which not being
used for useful purposes to
counteract the dissolving
rate + thus prevent fouling
the Zinc - I am now engaged

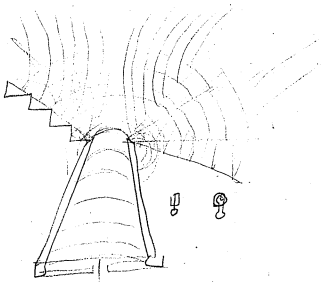
April 29/89

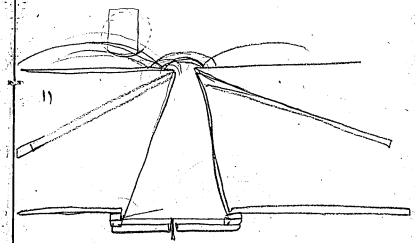
- expensive to produce plates
Chemically which are equal -
all respects to the peroxide of Lead
plates produced Electrolytically
as in a storage battery - The peroxide
produced Electrolytically act
very different from that produced
Chemically and this is due probably
to the intimacy of contact between
the particles of peroxide and
probably also to the possibility
that the chemically prepared
peroxide is a hydrate, to -
produce an anhydrous peroxide
of lead I use a plate of red
lead made by hydraulic
pressure + peroxidize it while
in a powerful dehydrating
Solution like that Concentrated
Sulphuric acid = Saturated
Solution of Chloride Zinc

Caveat April 29/59

Silicon Hydrofluoric acid phosphoric acid

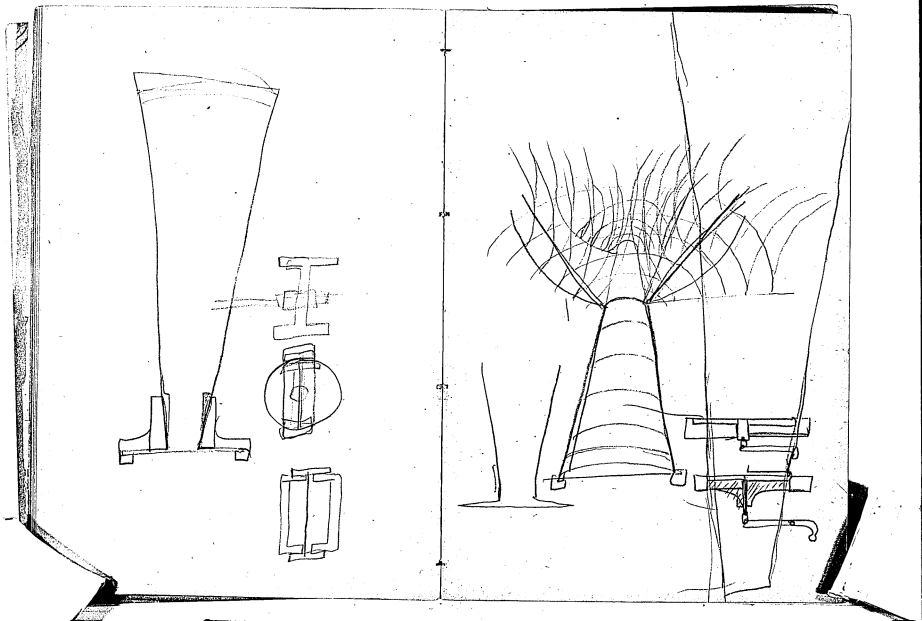
other dehydrating agents,

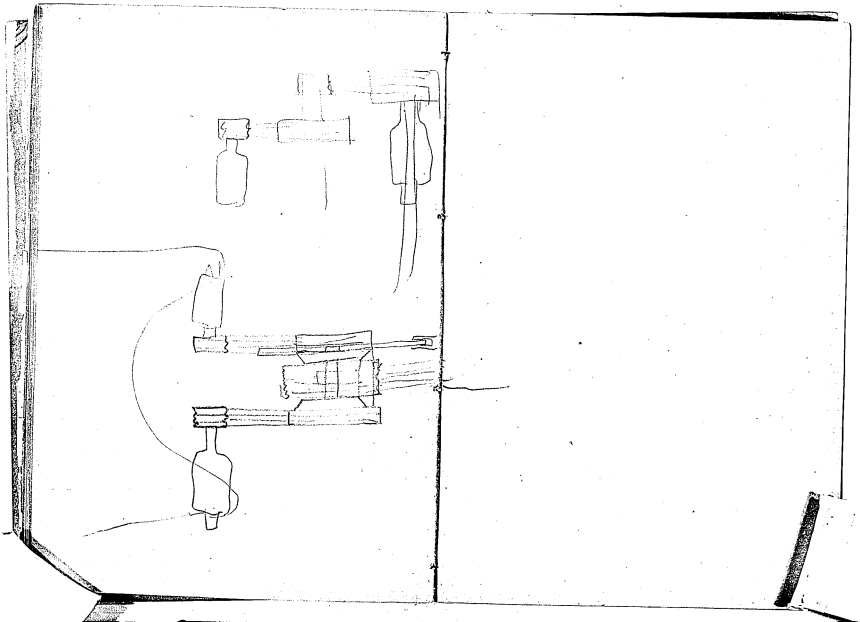




Electric Brake -
Caveat June 15-89

7





70 cells -

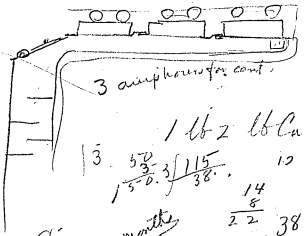
21 | 900 { 429
840
60
42
18 0

43 days

35
20
700

7

30 60 21. 50 Cells
50
300

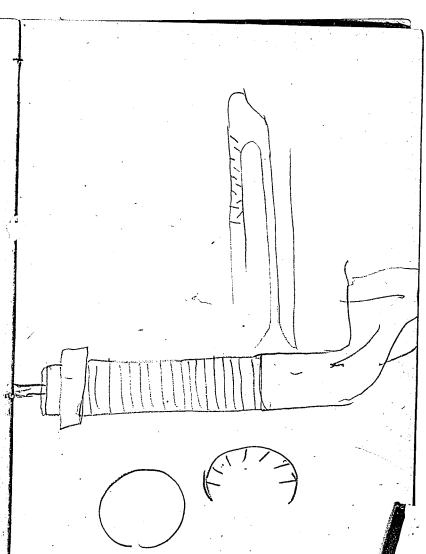


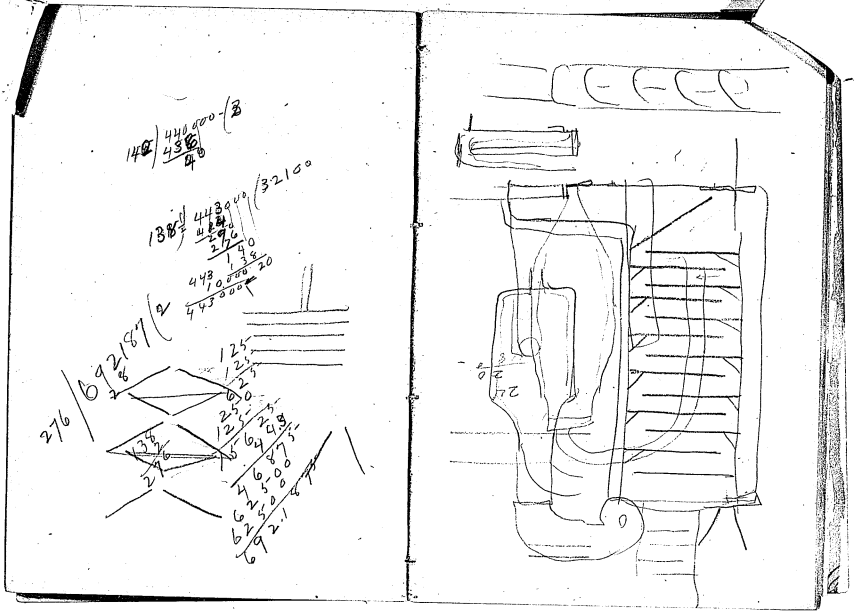
1 lb 2 lb Ca

3. 5 0 1 1 5
3 | 1 1 5 10
1 5 0. 3 8.

14
8
22 38

86 3 months 32.
#50





10

33000 ft lbs

400 | 44000 | 400000

2X13 — Surface 30 : 4 | 1600 | 31

8 | 1300 | 142 | 4 | 4 | 200

13 | 26

3

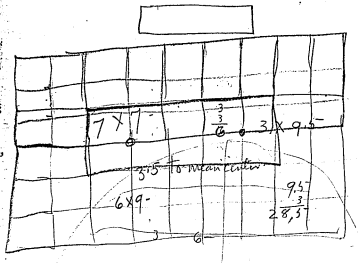
2

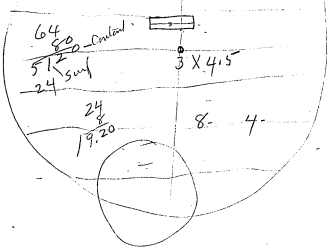
50 pot work | 0 | 8.23

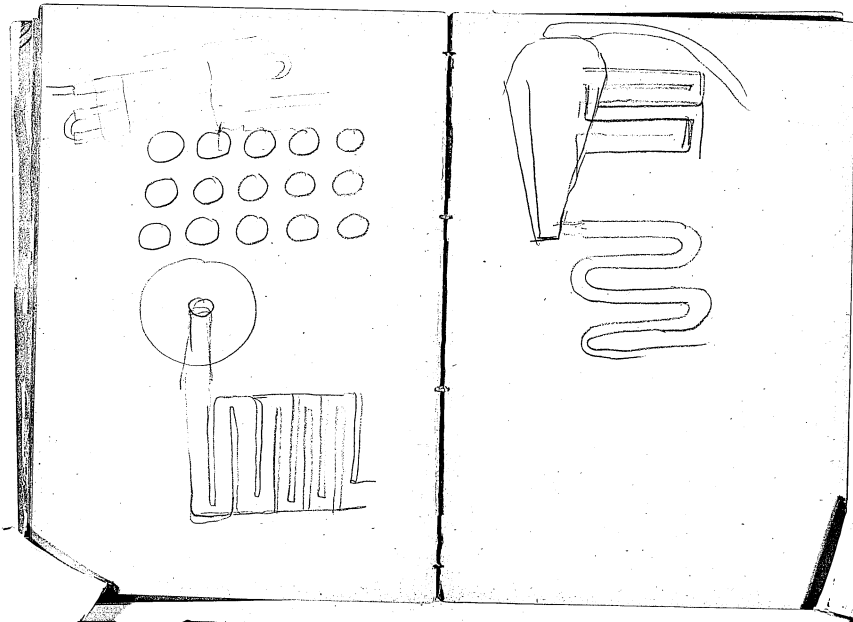
10

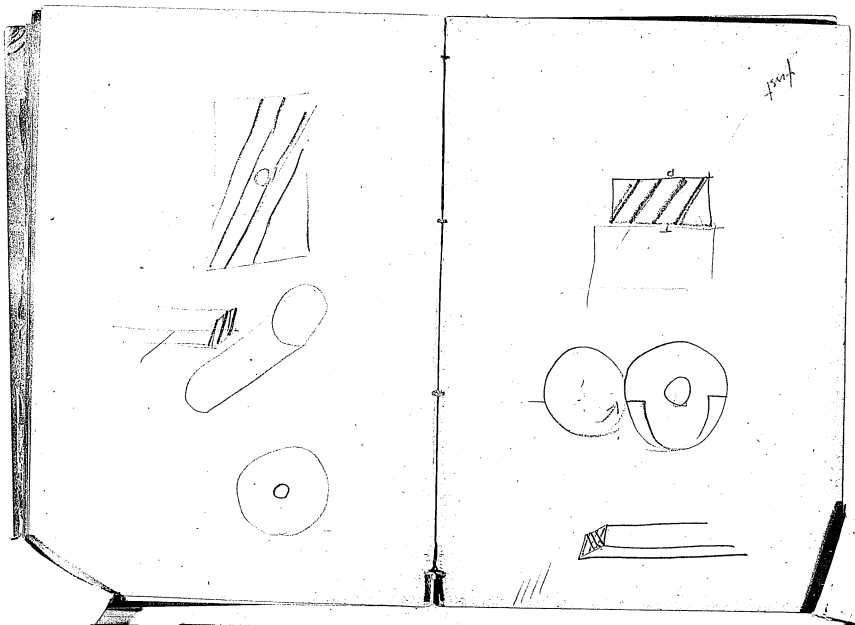
13

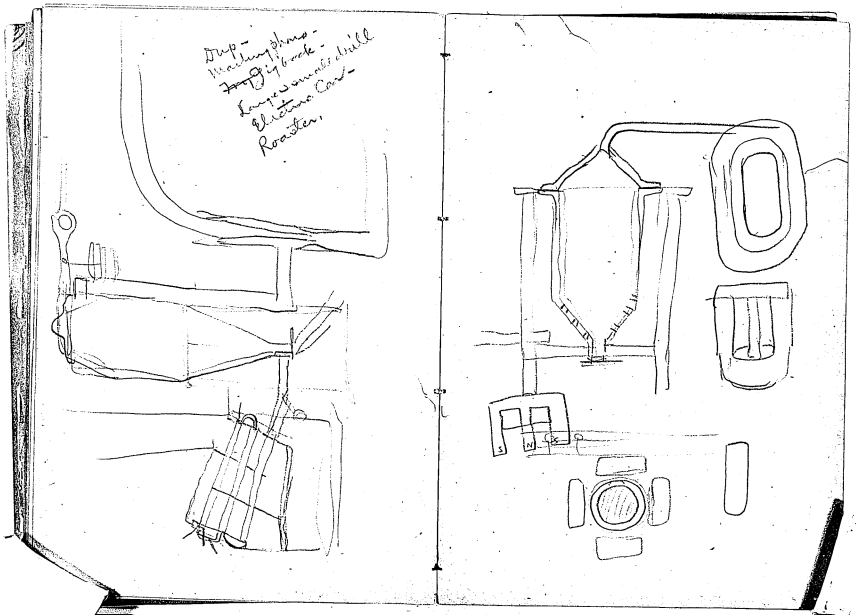
14







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Fly book-
Lawn mower drill
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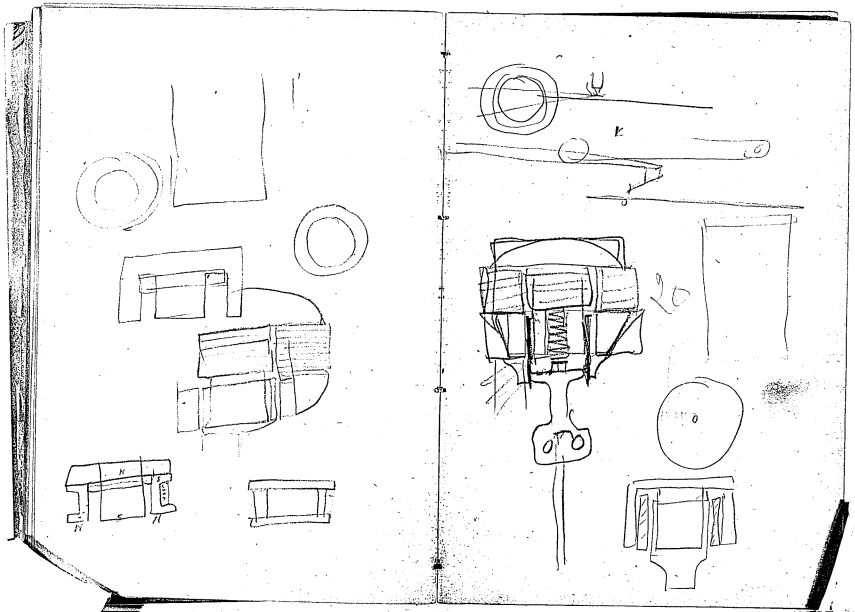
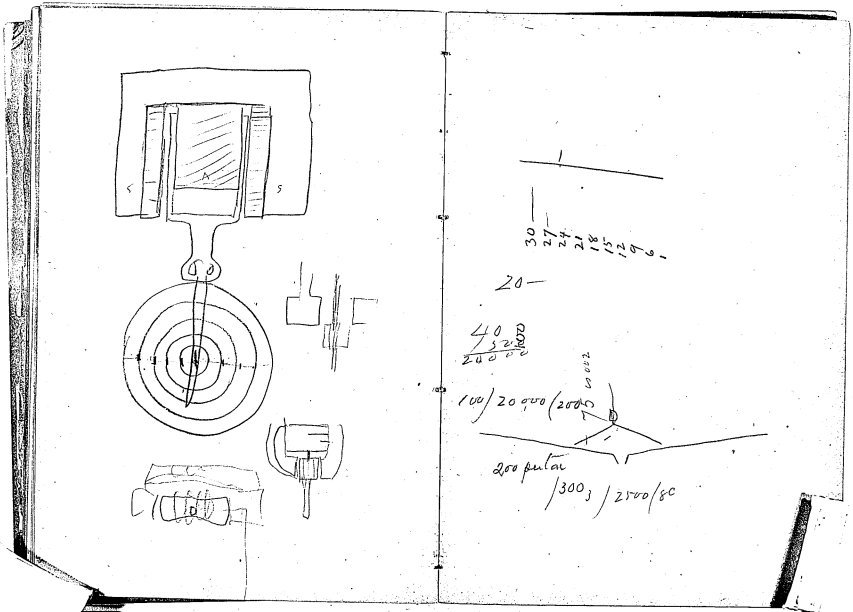
Victrola Cart-
Roaster,

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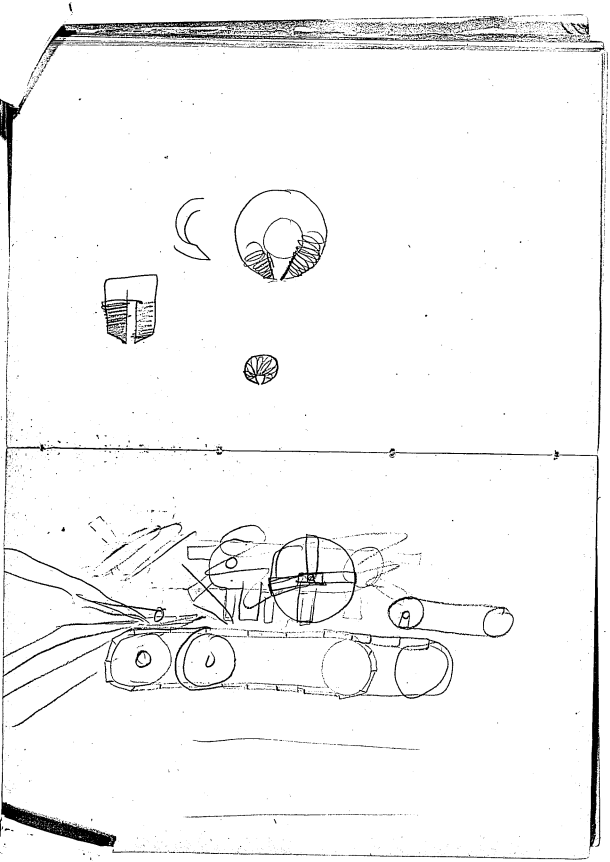
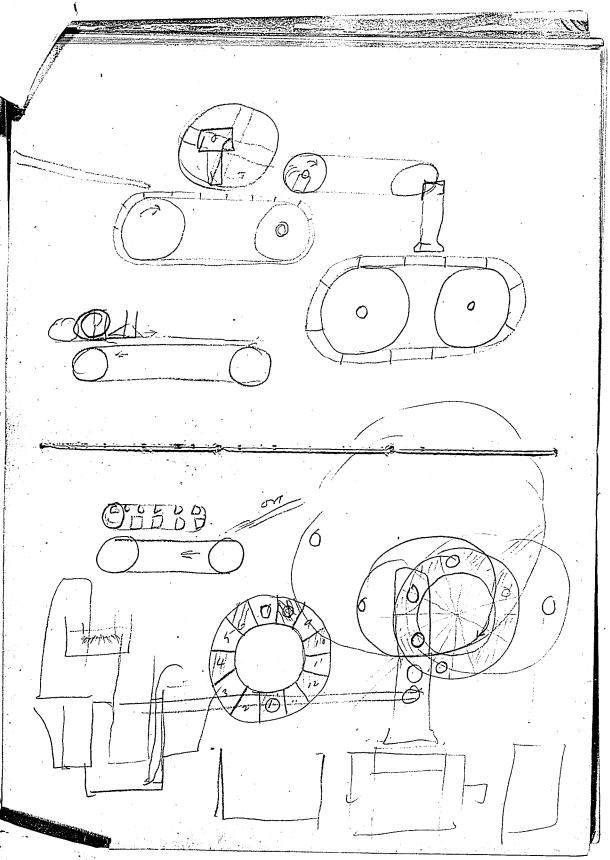
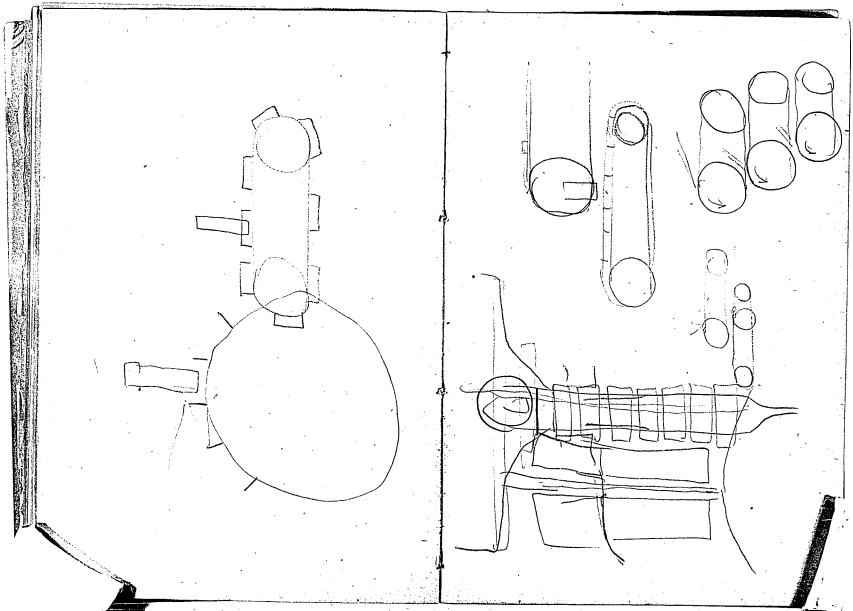
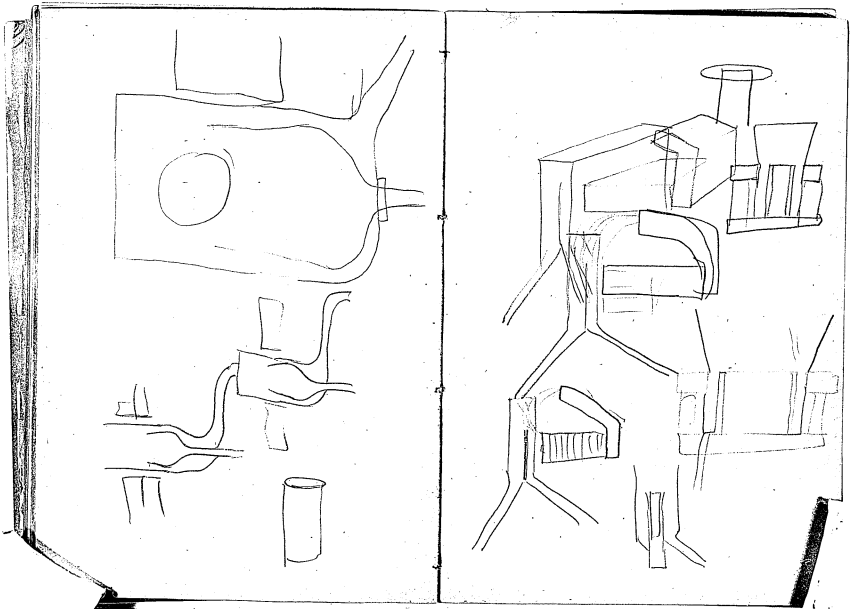
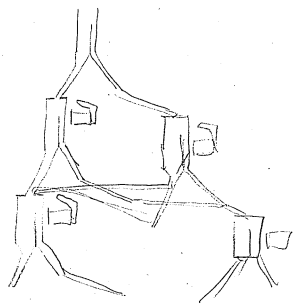
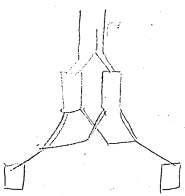


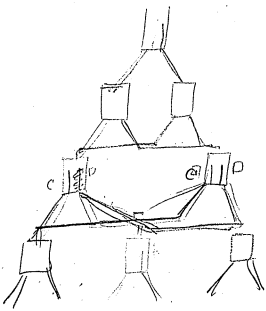


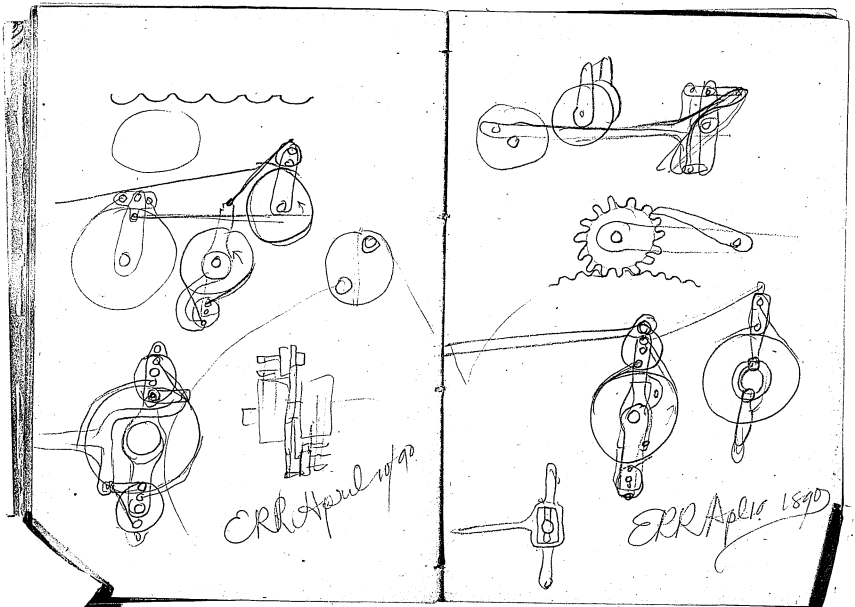


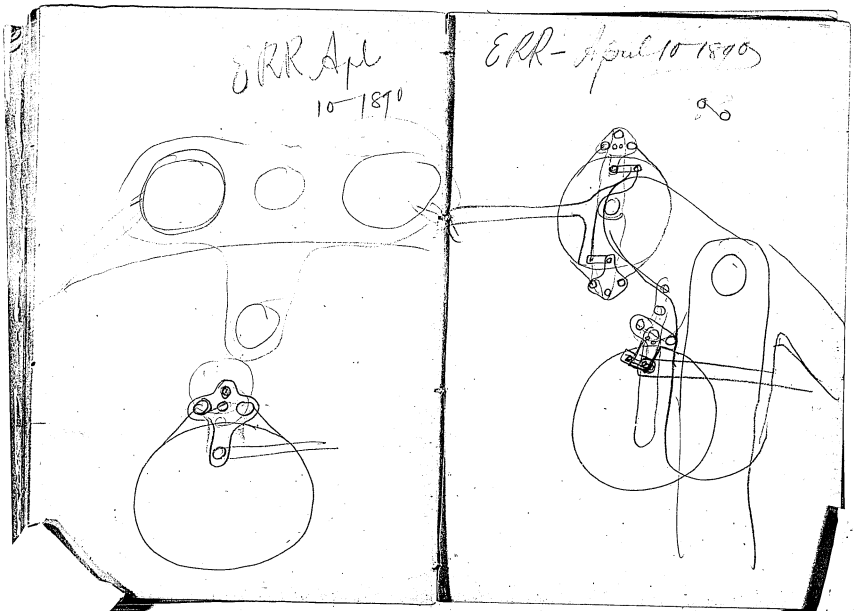









ERR April 10/90
ERR April 1890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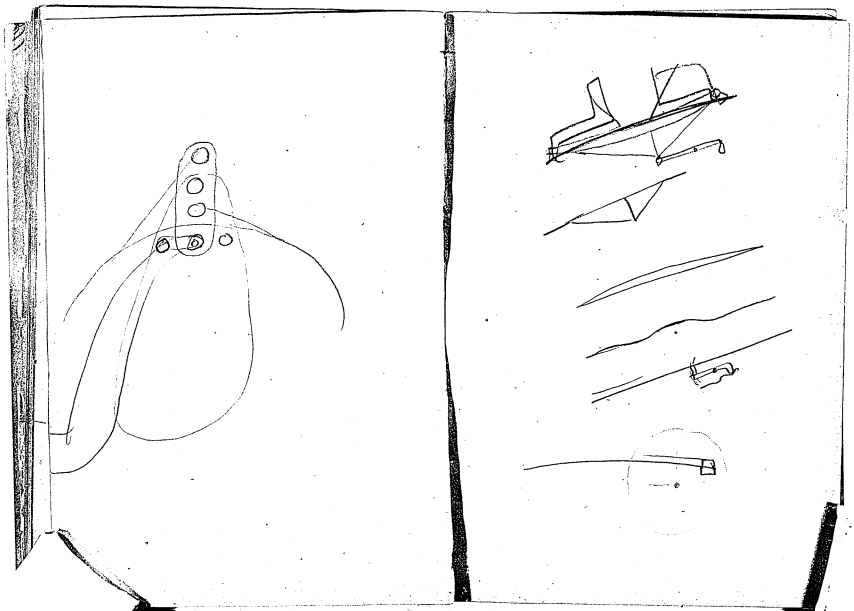
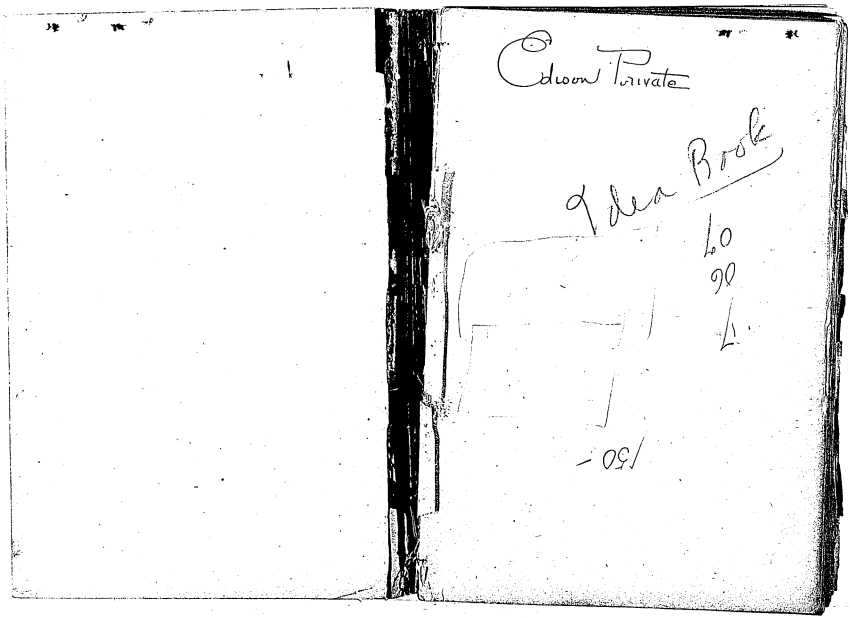


[THIS BOOK WAS USED IN BOTH DIRECTIONS. THE FOLLOWING PAGES WERE FILMED FROM THE BACK END FORWARD.]



TAE Jany 3 1888

Things doing and to be done.

Cotton Picker
New Standard Phonograph
Hand turning phonograph.
New Slow Speed Cheap Dynamo.
New Expansion Pyromagnetic Dynamo.
Deaf Apparatus
Electrical Piano
Long distance standard Telephone transmitter which employs devices of recording phonogr
Telephone Coil of Fe 64 ft in Paraffine or other insulator
Platina Point Trans using new phono Recorder devices
Gravity Battery for Telephones
" " " " Long distance
" " " " Phonoplex
" " " " Jump Telegraph
" " " " Voltmeter,

Improved Magnetic Bridge for practical work
Motograph Mirror
" Relay
" Telephone practical.

Artificial Cask.
Phono motor to work on 100 volt ckts
Duplicating Phono Cylinders
Deposit in Vacuo on Lace gold Tinsel also on Cotton Woollen Chemical composite of linseed surfaces to imitate silk - also by plating &c &c
Vacuous Ore milling Longo Machine
Magnetic Separator Longo "
Locking Material for Iron sand.

Artificial Silk
Artificial filaments
New 17/-
Unenflammable Insulating Material
Good wax for phonograms
Phonographic Clock
Long phonograph for Novels etc
Pig Iron Experts with Electricity & Magnetism
Malleabilizing Cast iron in Vacuo
Drawing fine wire.
Toy phonograph for Dolls
Cable Motograph
Very loud Motograph Telephone, with
1/3 sq phonograph.
Magneto Telephone, actual contact and magnet
Compression of carbon by rubber pieces as in microphone
Drum Compressor
Glass plate water Ore Separator
Veined faced cast for Stove Castings
Refining Copper Electrically
Quad Neutral relay
Cheap low inductive Cap insulating material
for Land Cable people —
Constant mixed for iron foundry

200 Volt 20 cp lamp
Cheap pressure Indicator
Recording Volt Indicator
Box balancing System
Alternating Machine & Transformer
Silver Surface Switches
Vulcanizing the Pc african Rubber adulterant
Platinum wire Dec cutting Machine
Silver wire round cutting system
Delivering or Capping bolting Cloth in Vacuo for durability
Master altered when with new devices for C speed
Expansion Mirror Platinoid wire in Vacuo
Photography through Opaque Screens
Photography by examining heat at the Critical points
Boron fil.
Hydrant Lamp
Phenaplex Repeater
Separating glass sheets tube etc Nickel Metallic
Artificial Mother Pearl
Red lead pencils equal to Graphite
Indian Ink
Tracing Cloth
Ink for Blind

Fluffy Incandescent Burner for gas
Regenerative Reasons burner
Centralized Arc in Arc Lamp
Caimen Scale Arc Lamp test
Storage battery alternating Cl? by steam Dynamo
ERR Continuous reducer
Electroplating Machine for Schnectady
Condenser Transformer
Sq ft diffraction gratings on silver by screw machine tool
special perennial paste for ornamental purposes —
Photo Scintillations,
Cheap plan producer Mimeograph surfaces
Mineo battery + Lamp
Storing Coal from State Machine
Butter direct from Milk
Burning asphalt Candles by high chimney
Magnetic RR signals.
Soften ink of books transfer to Cp photographic
to obtain matrix
Telephone Repeater
Dubbeltak for Hand Rubber
Artificial Ivory
Soften Vegetable Ivory to press in sheets
Various Letters in Dolando Type
Revolving Thermo

Cardew Indicator for Jamp telegraph

Marine telegraphy

Long distance speaking tube filled H_2O 2 diaphragms.

Lead plate battery for modifying alternating Current.

Two revolving brushes in battery lead forced down in Liquid close together & out into separate chambers to synonymize and reduce by one the other —

Siren phonograph —

Permanent tube and flotation of discs hard steel high polish separately magnetized & forced together permanently 005" Thick —

Telephone working molecularly

Ear tubes formed in crescent shaped wire

Long strip 50 cp carbon under stress & under for Cheap Voltmeter.

Chalk Battery.

Dynamo or motor long tube in long magnetic field top & bottom contacts forcing water through generates current by the passage.

Naphthalene in Bicycle oil cups for lubricant.

Diamagnetic motor. Capillarity tubes liquid rising repelled by permanent magnet, tube conn. solution to pump —

Thermo battery Steel Copper oxidized then galvanized over surface rapidly in metal is united good contact from effect of permeability —

Dr. S. R. phonograph

April 14 1888

Points for phenograph Caveat TAE

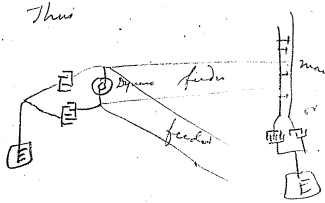
Split cylinders held together by rubber bands
Wax varnish in Volatile Solvent,
False cylinder with straight undercut
Letter Surfaces to Coat wax as -
Wax paper butt,
Revolving Rec'r Recess
Ex drop Trans
Gramme Motor
Arrange Electric Light Circuit.
Hand Turning mechanism
Clock work of intermittent motion
Turning cylinder off by hand with single
Knifed Edge hot Tenafe used in Mfg Wax
Separate turning off knife not lifted by arm
so it can be in abutment of the Recorder
Limiting stud to let wax so not dig Through
Double Cylinder Mouth
Flat plate mouth
Sealed tip for Clock & trip
New Recorder with Sebastian Cock

See Chronograph & Telescope Clock work
also wheel Drum for phono -

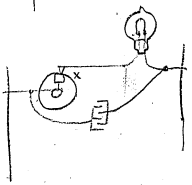
April 14 1888

Condenser for Direct transformer to protect from lightning — also ground protector on overhead line from lighting on ordinary Edison Systems

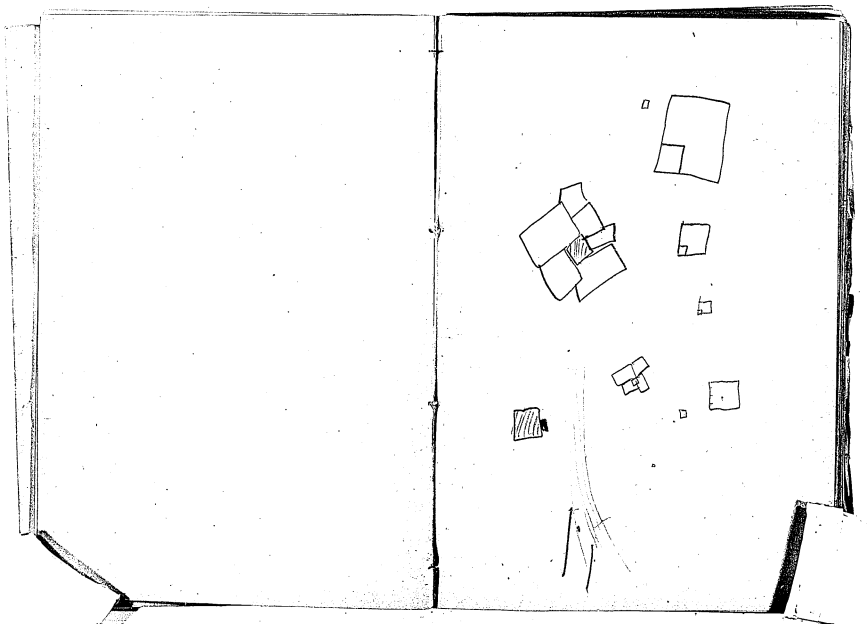
Thus

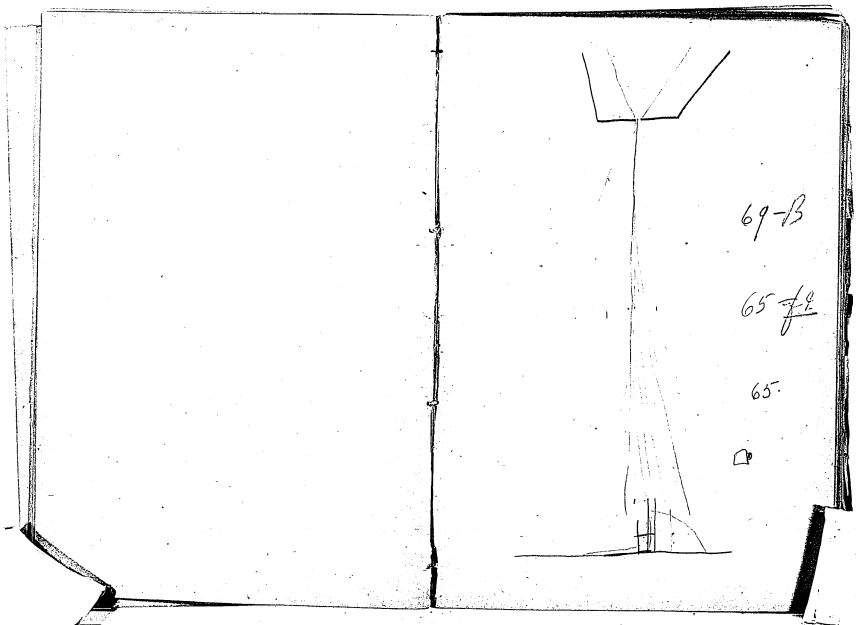


Something Curious



The ought to stop spark at X. but it is across low R multiple arc shot of it works then a 20@50 microfarad Condr across a station ought to stop spark at Every instrument which breaks shot in the system. Try but dont think it would work - as dead charged all time whether it breaks at X or not,




69-B
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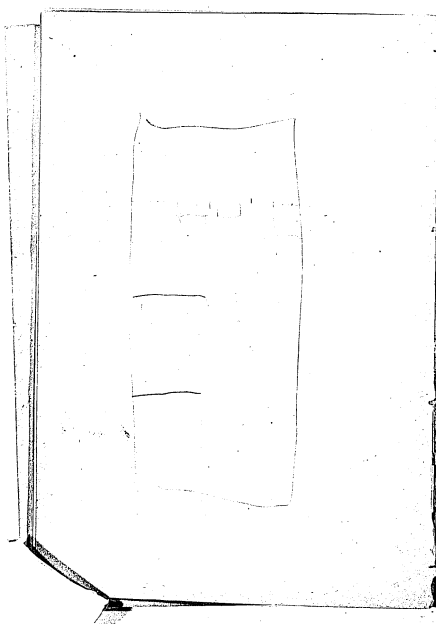
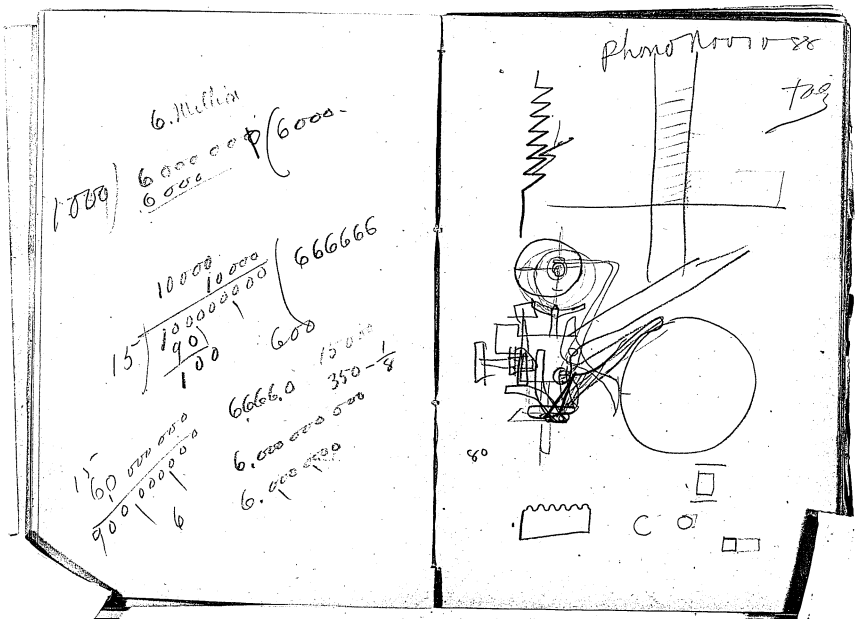
65.



Agencies for Chemical action.

Hydraulic press, Sprengel + mechanical pattern Leeds gauge.
Papin digester, Steam chest or chamber
Sand bath for sealed tubes,
powerful 2 ton magnet several extension pole pieces, —
Heliostat for chem action by light.
Refrigerator —
Freezing chamber —
Water filter pump —
3 Electric Currents,
fume closet, Steam bath
drying oven —
Squirt fil press — sponge precipitating jars, 2 doz Bell jars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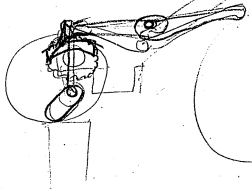
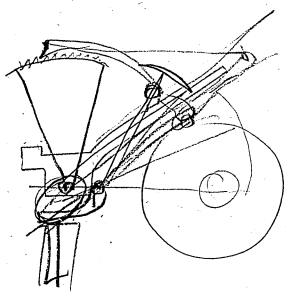
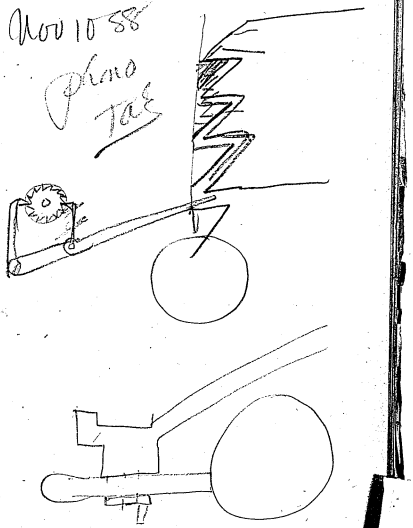


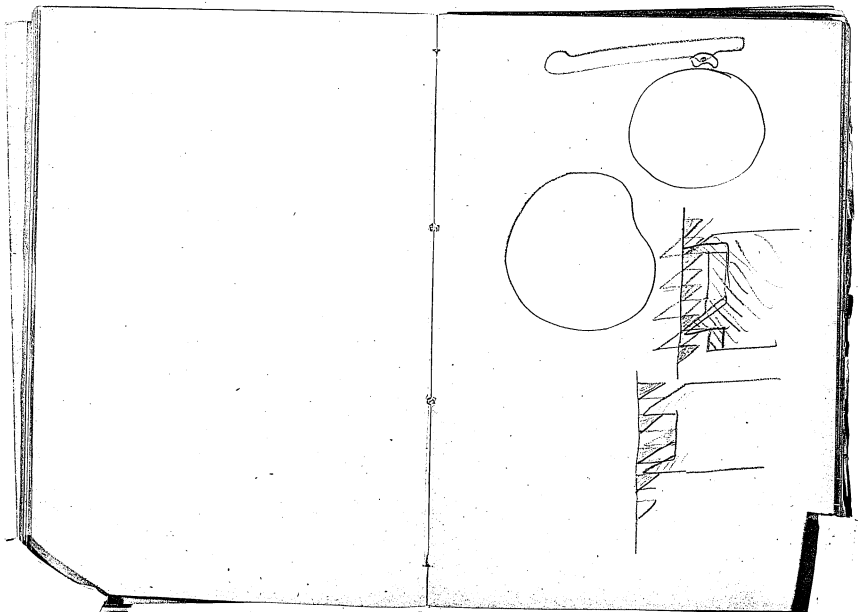
Nov 10 86
Hand
Tool

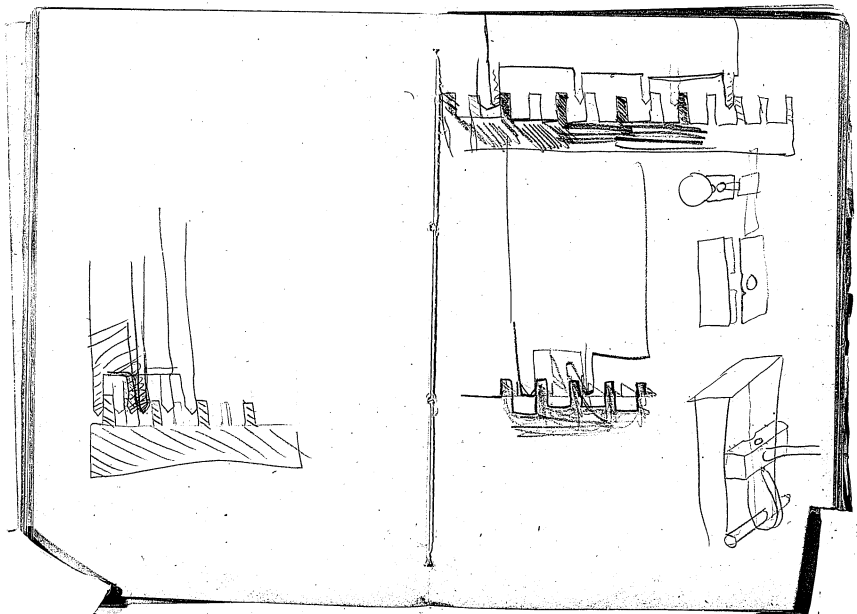


Nov 10 58

Piano Tax







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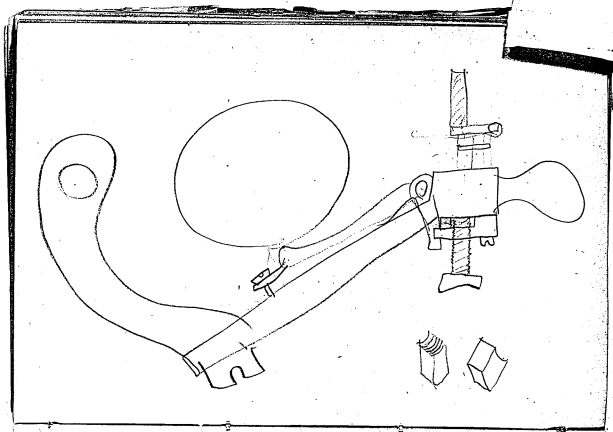

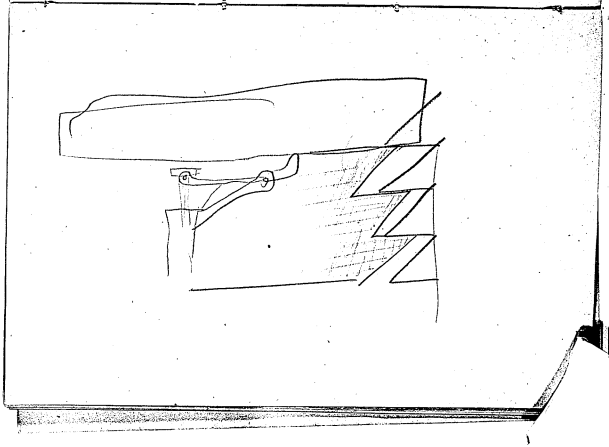

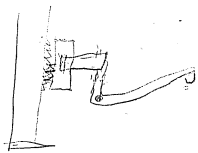

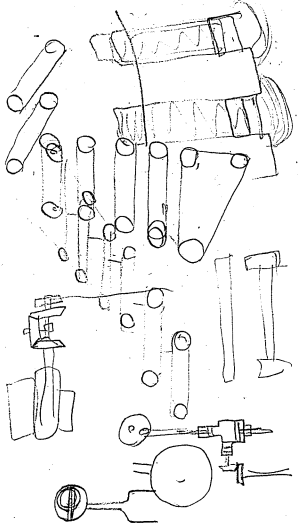

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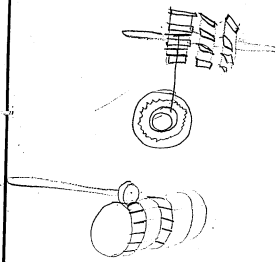

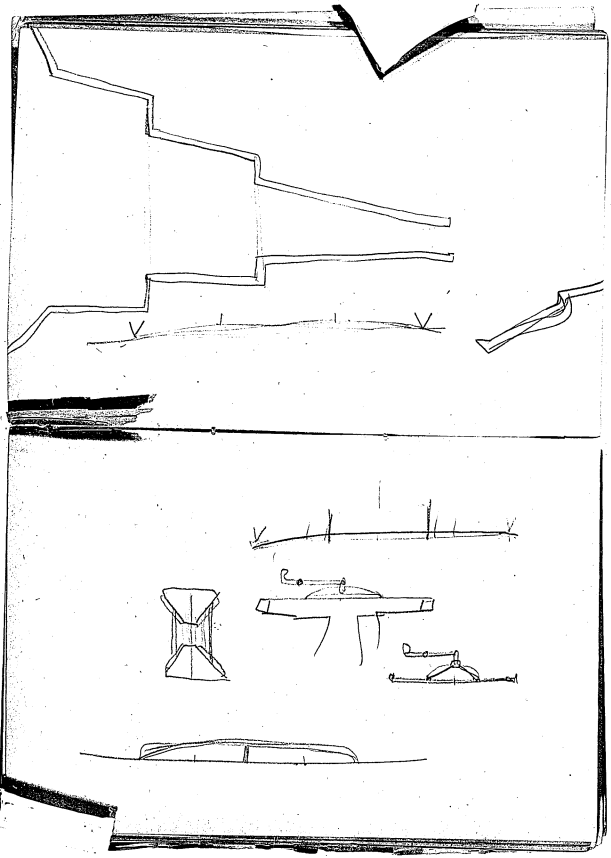

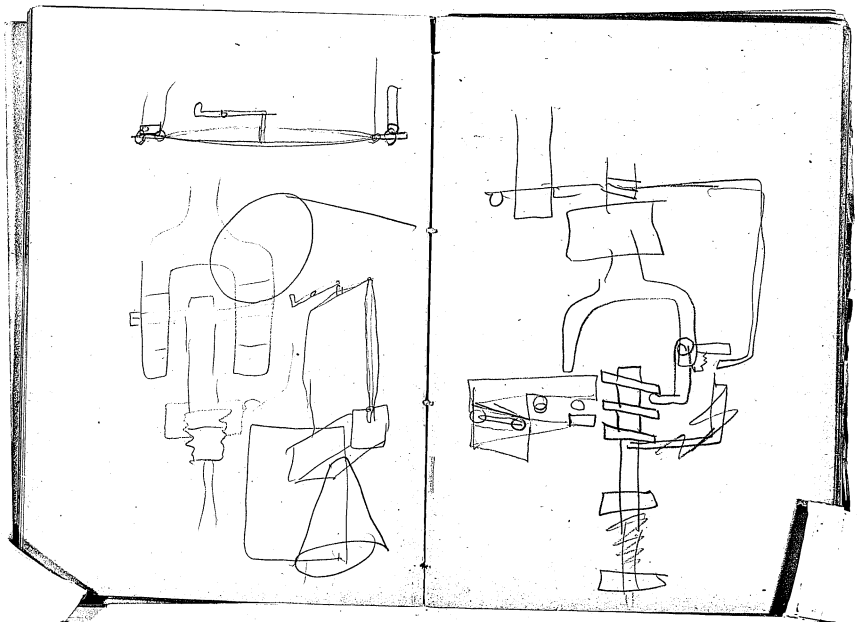

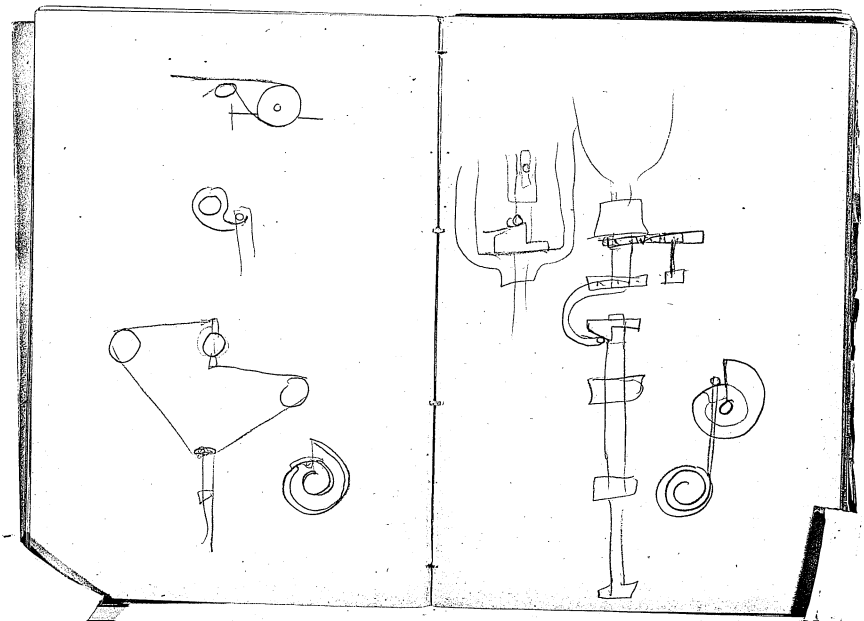

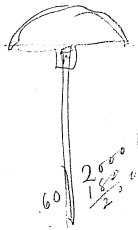
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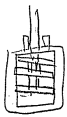

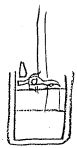

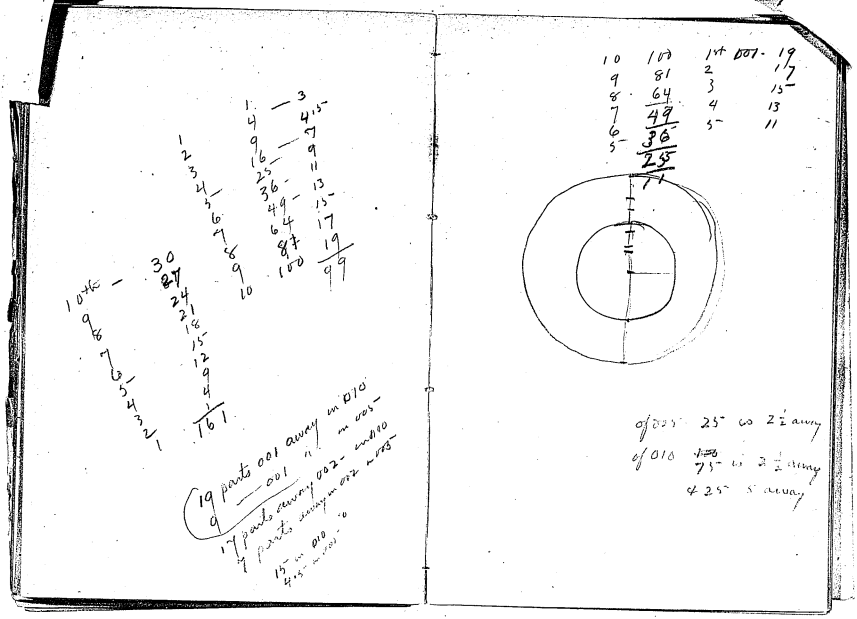
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25 — 11
36 — 13
49 — 15
64 — 17
81 — 19
100 — 99
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10 — 30
9 — 27
8 — 24
7 — 21
6 — 18
5 — 15
4 — 12
3 — 9
2 — 4
1 — 1
161
19 parts 001 away in 010
9 — 001 " " 001
17 parts away 002 = 010
9 parts away 002 = 001
15 = 010
4 = 001
10 — 100 — 19
9 — 81 — 17
8 — 64 — 15
7 — 49 — 13
6 — 36 — 11
5 — 25
1st 001 — 19
2 — 17
3 — 15
4 — 13
5 — 11
of 025 25 is 2½ away
of 010 75 is 2½ away
of 25 5 away

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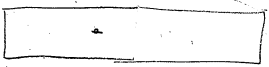
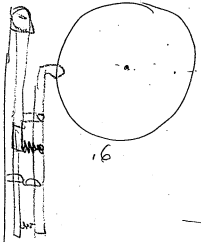
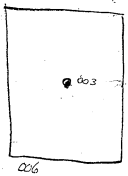
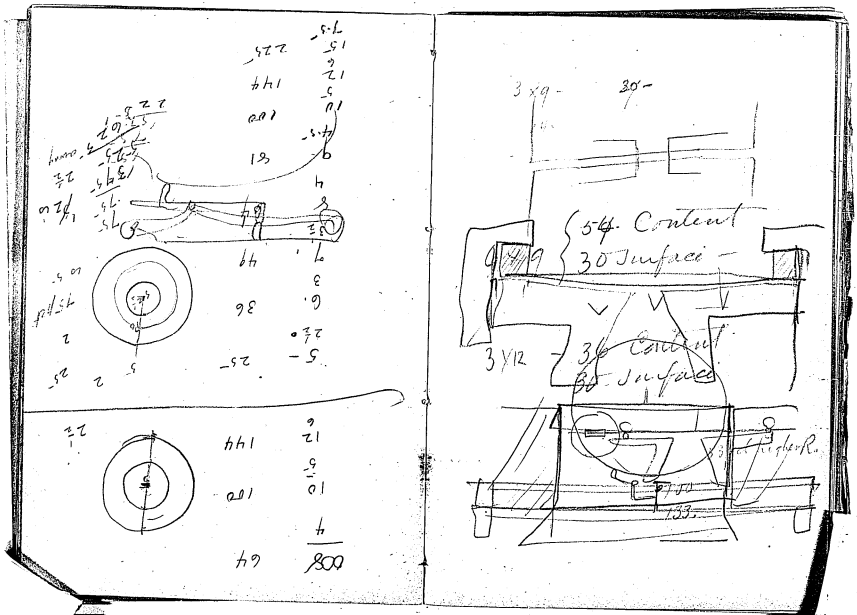


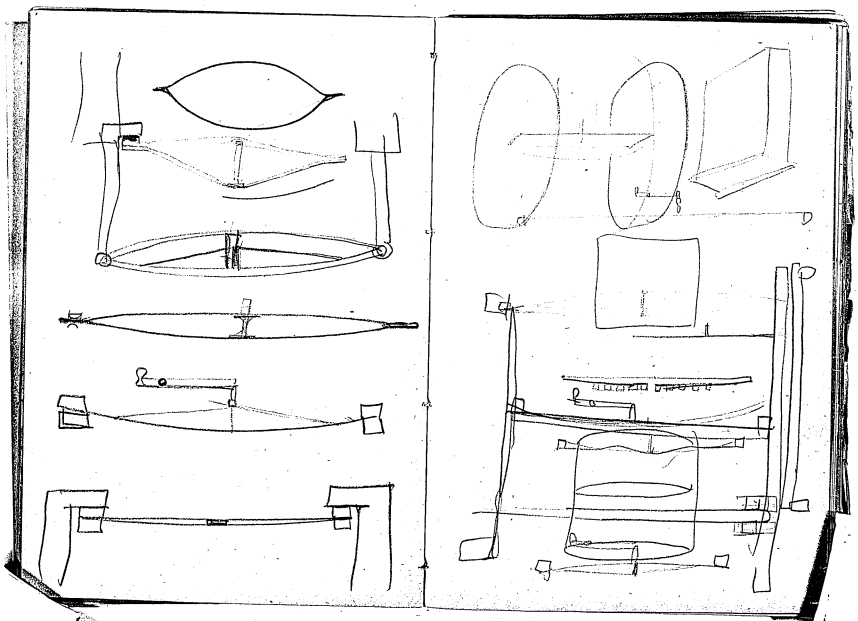
7.5
7.5
37.5
52.5
56.2

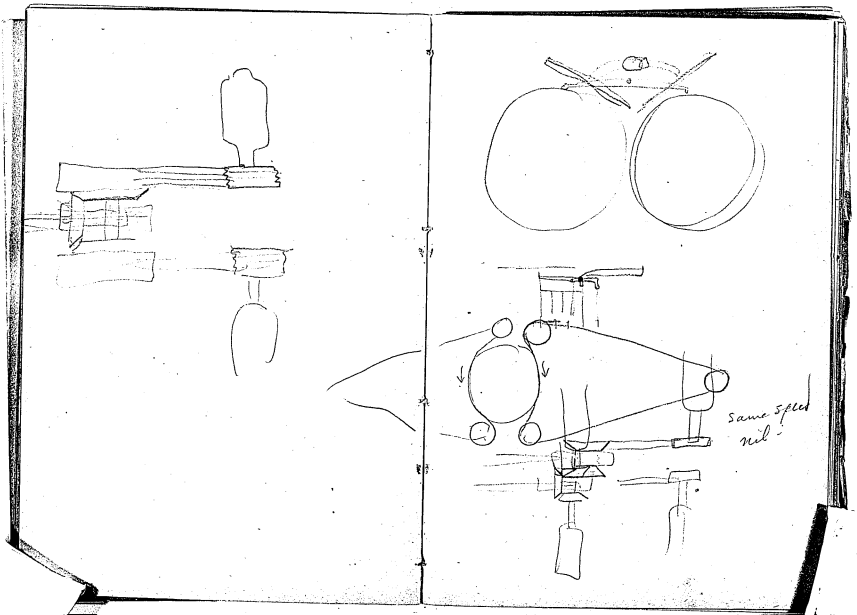


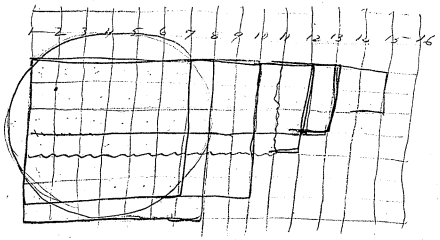


36


3 x 9 - 30 -
54 Content
30 Surface
3 X 12 - 36 Content
80 Surface




same speed
nil



6

2/135-
6·75

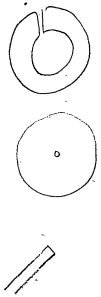
5 10

6-3

5×10

4

50-



24

C_{24}
H_4
O_{32}
60

mp 17

C 48
N 8
O 32
88

— mp 0

C 96
N 16
O 32
144

24
4

16